

What is claimed is

- i. A phase edge phase shift mask enforcing width of a field gate image, comprising:
a phase shift mask composed of a plurality of shifters and an opaque region for defining
the shifters; and
a trim mask composed of a first to a third trim patterns overlapping with the phase shift
mask; wherein
the first trim pattern corresponds to an opaque region between the shifters, the second
trim pattern is connected to the first trim pattern by being separated from at least one
shifter in predetermined width, and the third trim pattern is in contact with selected sides
of the first and the second trim patterns by overlapping with the shifters.
2. The phase edge phase shift mask of claim 1, wherein a notch structure is
removed by the third trim pattern in contact with the first and the second trim patterns.
3. The phase edge phase shift mask of claim 1, wherein a region separated in
predetermined width between the shifters and the first and the second trim patterns is
protected by the third trim pattern .

4. The phase edge phase shift mask of claim 1, wherein the shifters are phase shift regions formed to change a phase of incident light.

5. The phase edge phase shift mask of claim 1, wherein a dummy pattern attached to a side opposite to the selected sides on one side of the second trim pattern is further comprised.

6. A method of fabricating a phase edge phase shift mask enforcing width of a field gate image, comprising the steps of:

10 forming a plurality of shifters composed of phase shift regions;
forming an opaque region for defining the shifters;
preparing a phase shift mask composed of the shifters and the opaque region;
forming a first trim pattern corresponding to the opaque region between the shifters;
forming a second trim pattern separated from the shifters in predetermined width;
15 connecting the first trim pattern with the second trim pattern;
forming a third trim pattern in contact with selected sides of the first and the second trim patterns by overlapping within the shifters;
preparing a trim mask formed with the first to the third trim patterns; and
preparing the phase edge phase shift mask by the phase shift mask and the trim mask.

7. A phase edge phase shift mask enforcing a field gate image, comprising:
a phase shift mask composed of a plurality of shifters and an opaque region for defining the shifters; and
5 a trim mask composed of a first to a third trim patterns overlapping with the phase shift mask and a dummy pattern; wherein
the first trim pattern corresponds to an opaque region between the shifters, the second trim pattern is connected to the first trim pattern by being adjacent to at least one shifter, the dummy pattern is attached to an opposite side of the second trim pattern side faced
10 with the shifters, and the third trim pattern is in contact with selected sides of the first and the second trim patterns by overlapping with the shifters.

8. The phase edge phase shift mask of claim 7, wherein a notch structure is removed by the third trim pattern in contact with the first and the second trim patterns.

15 9. The phase edge phase shift mask of claim 7, wherein the third trim pattern protects a region separated in predetermined width between the shifters and the first and the second trim patterns.

10. The phase edge phase shift mask of claim 7, wherein the shifters are phase shift regions formed to change a phase of incident light.

11. A method of fabricating a phase edge phase shift mask enforcing width of a
- 5 field gate image, comprising the steps of:
- forming a plurality of shifters composed of phase shift regions;
- forming an opaque region for defining the shifters;
- preparing a phase shift mask composed of the shifters and the opaque region;
- forming a first trim pattern corresponding to the opaque region between the shifters;
- 10 forming a second trim pattern adjacent to the shifters;
- forming a dummy pattern on an opposite side of the second trim pattern side adjacent to the shifters;
- connecting the first trim pattern with the second trim pattern;
- forming a third trim pattern in contact with selected sides of the first and the second trim
- 15 patterns by overlapping within the shifters;
- preparing a trim mask formed with the first to the third trim patterns; and
- preparing the phase edge phase shift mask by the phase shift mask and the trim mask.

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